***BIOLOGY1 & PRE-AP SYLLABUS***

***Instructor:* J. Martinez**

***Room #:* 203**

***Conference period:* 4th**

***School phone #:* 882-1606**

***General Course Descriptions***

*Bi*ology is the "Study of Life". This is a course designed to give students a solid foundation in the biological sciences. It is a college preparatory class, which emphasizes the acquisition of knowledge through investigation. Students will conduct field and laboratory investigations, and make informed decisions using critical-thinking and problem solving. Students in biology will study a variety of topics that include structures and functions of cells and viruses; growth and development of organisms, cells, tissues, and organs, nucleic acids and genetics; biological evolution; taxonomy; metabolism and energy transfers in living organisms; living systems; homeostasis; ecosystem; and plants and the environment.

*Textbook:* Biology The Dynamics of Life

By: Glencoe/McGraw-Hill

***Course Objectives****:*

1. To develop higher problem solving skills.
2. To develop the students ability to express biological concepts in writing.
3. To reinforce study skills including note taking, listening skills, critical thinking, problem solving, and using reference material.
4. To be able to utilize correct scientific protocol in doing basic investigations.
5. To develop an appreciation of the interrelationship between humankind and the environment.
6. To explore biologically based career opportunities.
7. To utilize the Internet to broaden students knowledge of the biological science.
8. To provide a laboratory program that gives students meaningful opportunities to study natural world.
9. Inspire students to expand their science education beyond required levels.

**TEKS:** **1AB ,2A,B,C,D, 3A,B,C,D,E,F, 4A,B,C, 5,A,B, 6A,B,C,E, 7A,B, 8A,B,C, 9A,B,C,D, 10C, 12A,B,C,D,E, 13A,B**

# Course Outline

1. **Lab Safety & Equipment (Teks: 1a,b)**
2. Safety Rules
3. Equipment
4. Emergency Drills
5. **Measurements & Scientific Method (2a,b,c,d)**
6. Metric System
7. American System
8. Scientific Method Steps

### Ecology (12a,b,c,d,e)

A. Potential Dynamic

B. Biotic Potential

C. Limiting Factors

1. Ecosystems
2. Community Dynamics
3. Biogeochemical Cycles
4. **Molecules & Cells (4a,b 9a,c 5a,b)**
5. Biological Chemistry
6. Review of atoms, molecules, bonding, pH, water
7. Carbon, functional groups
8. Carbohydrates, lipids, proteins, nucleic acids
9. Chemical reactions, free-energy changes, equilibrium
10. Enzymes, coenzymes, cofactors, rates of activity, regulation
11. Cells
12. Prokaryotic and eukaryotic cells
13. Plant and animal cells
14. Structure and function of cell membranes
15. Structure and function of organelles, sub cellular comp. Of mobility, cytoskeleton
16. Cell cycle, mitosis, cytokinesis

**BENCHMARK #1 October, 2003**

**TEKS:1A,1B,2A,2B,2C,2D,3A,3B,3C,3D,3E,3F,12A,12B,12C,12D,12E,9A,9C,4A,4B,5A,5B**

**V.** **Energy Transformations**

1. ATP, energy transfer, coupled reactions, chemiosmosis
2. C3 and C4 photosynthesis
3. Glycolysis, fermentation, aerobic respiration

**VI**. **Genetics (3c, 4c 6a,b,c,e,f)**

1. Molecular genetics
2. Describe components of DNA
3. Illustrate how information for specifying the traits of an organism is carried in DNA
4. Explain replication, transcription, and translation using models of DNA and RNA
5. Identify and illustrate how changes in DNA cause mutations and evaluate the changes
6. Identify and analyze karyotypes
7. Evaluate the impact of research on scientific thought, society, and the environment
8. Compare the structures and functions of viruses to cells
9. Describe the role of viruses in causing diseases such as common colds, small pox, influenza and warts
10. Identify and describe the role of bacteria in maintaining health such as in digestion and causing disease such as streptococcus infections and diphtheria
11. Heredity(6a,c,e)
12. Meiosis
13. Mendel’s Laws, probability
14. Inheritance patterns: chromosomes, genes, alleles, interactions

**BENCHMARK #2 JANUARY ,2004 TEKS: 4B,9B,6A,6B,6C,6F,3C,4C,6E**

### Evolution (7a,b)

1. Compare genetic variations observed in plants and animals
2. Compare the processes of mitosis and meiosis and their significance to sexual and asexual reproduction
3. **Taxonomy (8a,b,c,d)**
4. Principles of Taxonomy
5. Systematics,
6. Five-kingdom system
7. Survey of Monera, Protista, and Fungi

**BENCHMARK #3 MARCH,2004 TEKS: 6A,6C,TA,7B,8A,8B,8C,4C,4D**

**IX**. **Plants (10c, 13a,b)**

1. Diversity, classification, phylogeny, adaptation to land, alteration of generations
2. Structure and physiology of vascular plants
3. Seed formation, germination, growth in seed plants
4. Hormonal regulation of plant growth
5. Plant response to stimuli: tropisms, photo-periodicity

**X. Animals (5a,b,c, 10a,b, 11a, 7b)**

1. Diversity, classification, phylogeny, survey of acoelomate, psuedocoelomate, protostome, and deuterostome phyla
2. Structure and function of vertebrae tissues, organs, and systems, homeostasis
3. Gametogenesis, fertilization, embryogeny, development
4. Behavior

**BENCHMARK #4 JUNE, 2004 TEKS: 13A,13B,10A,10B,10C,5A,5B,5C,11A,7B**

***Students Evaluation / Grades***

Grades will be calculated with 90-100=A, 80-89=B, 75-79=C, 70-74=D, and 0-69=F. Assignments will include homework, labs, projects, and tests assessments. Grades will be updated and posted on the board according to student numbers the day following every major test. Late and missing assignments can be obtained from the computer print out. The final grade for this class will not be a surprise to the student. Daily work 25%, Exams 50%, Labs 25%. Science Project will count as 25%.

***Special Assignments***

Each student will be assigned a major project to complete, worth 100 pt. on the grade, for each nine weeks. Each student will be required to attend a field trip worth an exam grade (if available). Power Point presentations is a must. They might also do a science fair project.

***Make Up Work***

Each student is responsible for all work assigned even if the student is absent. All assignments are important. If absent, it is the student’s responsibility to obtain the assignment(s) from the teacher before class, after class, or after school. Excused absences will have the same number of days, as they were absent to make up work. Unexcused absences will have only one day.

##### Late Work

A grade of zero (0) is given for failure to bring assigned work to class when it is due, unless the student is absent. Late daily work is usually not accepted for a grade, especially if the work has already been corrected (answers given) in class. Ten (10) points per day will be subtracted from a student's grade on any late assignments that the teacher specifies as still acceptable.

***Re-Teaching****:*

Re-teaching is defined as another presentation of content, usually to provide an additional opportunity for a student to learn. Re-teaching will be an integral part of the lesson cycle and may occur in many different situations. Some examples include: direct teaching, guided practice, independent practice, cooperative learning activities before class, and/or after school. The teacher will determine the appropriate time for teaching based on student’s performance.

***Attendance***

Attendance is mandatory! So many things are done in class that simply cannot be made up! Many of the labs, laser disc presentations, videotapes, and other assignments are most difficult if not impossible to make-up. Make-up is the responsibility of the student.

***Materials***

Loose-leaf paper (no spirals, please) Graph paper

Dividers with tabs Showboard

Clipboard Ring binder

Ink pens (blue or black) Color pencils

Pencil-bag that zips shut

Glue stick

#2 pencil

#### Notebook

Students must have a notebook for notes, class work, and lab and project information. The first page of the notebook should have the following information centered.

Page 1: Name

Subject

Teacher Room #

Date

Page 2: Course Syllabus

Page 3: Laboratory Safety Rules

Page 4. Assignment Sheet

Then your dividers

* Assignment Sheet, Notes, Vocabulary, Daily Work (homework, class work, worksheets, quizzes), Labs, Tests.

ARRANGE ALL PAPERS BY DATES-CHRONOLOGICAL ORDER (MOST RECENT DATE LAST)

**Classroom Rules and Expectations**

The rules for this classroom are based on the idea that we must be in an environment that is conducive to learning. So, anything or anyone that disrupts this environment is out of order. The following rules will help us create and maintain that environment.

## I. Be on Time

1. You must be in the classroom and sitting down in our assigned seat by the time the bell rings.
2. Absences and tardies will be counted from the first day of class.
3. On the 3rd tardy you will be referred to the office
4. Punctual and regular attendance is essential for satisfactory progress in the class
5. Every student must submit a Re-entry form after being absent

## II. Follow Instructions

1. Only one person speaks at a time
2. Follow class procedures
3. Sharpen pencils before the tardy bell

## III. Come prepared to Class

1. Textbook must be covered at all times
2. Bring notebook paper
3. Bring pen or pencil
4. Bring notebook with proper dividers
5. Student will be responsible for make-up work if absent

## IV. Respect Yourself and Others

1. Keep this classroom neat and clean at all times
2. No games, cards, radios, etc.
3. No hair brushing, putting on make-up, or spraying cologne or perfume
4. Please throw all trash in the wastebasket

### No Food, Drinks, or Gum Allowed

### Dismissal

1. Remain in seats when the bell rings
2. Teacher will dismiss the class and not the bell

You will be reminded once the instructor without consequence if a rule is broken. A 2nd offense will earn a detention (15 min.), 3rd offense will earn a 30-minute detention. Anything beyond this will result in removal form the classroom until a conference with an assistant principal, teacher, and parent can be arranged.

I have read the previous statements of rules and expectations and agree to be part of a successful educational experience in Mr. Martinez ‘class!

Students Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_